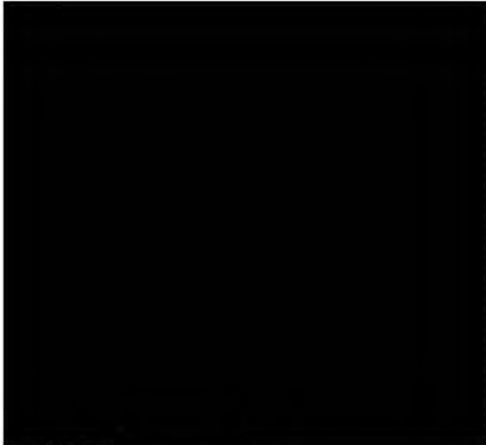


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## SOURCE:

SUMMARY: JIUQUAN SPACE CENTER TO LAUNCH PRC'S FIRST SPACE SHUTTLE. PRC-RUSSIA AGREE TO TWO MARS MISSIONS. FIVE KEY PLA NAVAL RESEARCH CENTERS FOR DEVELOPING WARSHIPS PROFILED. AIR FORCE DEVELOPS "ELECTRONIC INTERFERENCE DEVICE" TO CONCEAL ITS COMBAT AIRCRAFT.

TEXT: 1. INTRODUCTION

A. THIS REPORT CONTAINS SUMMARIES OF PRC MEDIA REPORTS ON DEVELOPMENTS IN THE DEFENSE SCIENCE, TECHNOLOGY, AND INDUSTRY (DSTI) SECTOR FROM 16-31 OCT 92.

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## 2. DSTI ORGANIZATION

A. LARGE SINO-TAIWANESE ELECTRONICS JOINT VENTURE (JV) SET UP IN JIANGSU PROVINCE (PEOPLE'S DAILY - PD, 19 OCT). THE JIANGSU YUNTAI SALT TRANSPORTATION AND MARKETING COMPANY (CO) AND AN UNIDENTIFIED (UI) TAIWANESE CO HAVE JOINTLY ESTABLISHED THE YINYOU ELECTRONIC CO IN LIANYUNGANG //GEOCOORDS: 3436N/11913E//. THIS IS THE LARGEST EQUITY JV ELECTRONICS ENTERPRISE IN JIANGSU, WITH JOINTLY INVESTED CAPITAL OF USD 3.2 MILLION. THE FACTORY HAS SIX CARBON FILM CONSTANT RESISTOR PRODUCTION LINES WITH A TOTAL ANNUAL PRODUCTION CAPACITY OF 2.05 BILLION RESISTORS OF DIFFERENT TYPES.

B. STATE SCIENCE AND TECHNOLOGY COMMISSION (SSTC) URGES HIGH TECH ENTERPRISE DEVELOPMENT ZONES TO SEEK NEW TECHNOLOGIES (SCIENCE AND TECHNOLOGY DAILY - STD, 30 OCT). THE ARTICLE RECALLS THAT THE 31 NEW HIGH TECH ZONES WERE SET UP BY SSTC IN 1991 TO ENCOURAGE ENTERPRISES TO APPLY THE LATEST SCIENTIFIC AND TECHNOLOGICAL (S AND T) DEVELOPMENTS TO PRODUCTION OF CONSUMER GOODS. IT ALSO NOTES THAT MOST NEW TECHNOLOGIES BEING APPLIED WITHIN THE ZONES ARE THE FRUITS OF RESEARCH AND DEVELOPMENT (R AND D) WORK IN STATE-RUN RESEARCH INSTITUTES (RI) AND CENTERS. MANY STATE-RUN RI'S HAVE OPENED UP THEIR OWN HIGH TECH ENTERPRISES IN THE ZONES. HOWEVER, ENTERPRISES WITHIN THE ZONES ARE RAPIDLY RUNNING OUT OF NEW TECHNOLOGIES TO APPLY, BECAUSE SCIENTISTS WORKING IN RI'S WOULD RATHER SELL THEIR S AND T RESULTS TO PRIVATE ENTERPRISES. THESE CONTRADICTING INTERESTS ARE THE RESULT OF CHINA'S AMBIGUOUS PROPERTY SYSTEM. THE ARTICLE RECOMMENDS THAT SSTC SET UP A SHAREHOLDING SYSTEM, UNDER WHICH CHINA'S STATE-RUN RI'S SHARE IN THE OWNERSHIP OF NEW ENTERPRISES IN THE ZONES AND, AS A RESULT, ALSO OBTAIN A SHARE OF THE PROFITS OF THESE ENTERPRISES. (SEE ALSO 1-15 SEP 92 DSTI REPORT.)

C. SSTC MERGES TWO KEY BEIJING S AND T PROMOTION AGENCIES INTO "CHINA TECHNOLOGY MARKET ASSOCIATION" (CHINA DAILY - CD, 30 OCT). SSTC HAS AMALGAMATED THE "CHINA TECHNOLOGY MARKET PROMOTIONAL COUNCIL" AND THE "CHINA TECHNOLOGY MARKET RI" INTO THE NEW ASSOCIATION IN A MOVE TO PROMOTE CHINA'S FLEDGLING TECHNOLOGY MARKET. THE NEW ASSOCIATION REPRESENTS OVER 3,000 RI'S, INSTITUTES OF HIGHER LEARNING, AND BUSINESS ENTERPRISES. IT WILL ATTEMPT TO IMPROVE COOPERATION IN CHINA'S TECHNOLOGY MARKET NETWORK, AS WELL AS TRAIN ADMINISTRATIVE PERSONNEL, AND PROMOTE RESEARCH AND EXCHANGES.

D. STATE PLANNING COMMISSION (SPC) SETS UP NATIONAL LEVEL ELECTRONICS INDUSTRY EXPERIMENTAL CENTER IN SHENZHEN SPECIAL ECONOMIC ZONE (SEZ) (CD, 31 OCT).

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THE SPC WILL PROVIDE 50 MILLION YUAN IN OPERATING CAPITAL AND THE SEZ GOVERNMENT WILL PROVIDE ABOUT 50 MILLION YUAN IN LAND AREA TO SET UP THE NEW CENTER. THE NEW CENTER WILL CARRY OUT INDUSTRIAL EXPERIMENTS ON ELECTRONICS PRODUCTS MANUFACTURED BY THE ELECTRONICS INDUSTRY WITH NEW AND HIGH TECHNOLOGIES.

3. DSTI FINANCE AND MANAGEMENT

A. PLA'S CHINA XINXING CORPORATION (CORP) ESTABLISHES SUBSIDIARY IN HONG KONG (CD, 22 OCT; SOUTH CHINA MORNING POST - SCMP, 27 OCT). THE TRADING ARM OF THE PLA GENERAL LOGISTICS DEPARTMENT (GLD) HAS SET UP A HONG KONG BRANCH IN COOPERATION WITH THE HONG KONG CO, CHEUNG KONG HOLDINGS. XINXING CHAIRMAN ((ZHANG)) BIN AND CHEUNG KONG CHAIRMAN ((LI)) KASHING PRESIDED AT THE OPENING CEREMONY ON 26 OCT. XINXING IS THE SOLE EXPORTER OF MILITARY EQUIPMENT PRODUCED BY THE MASSIVE GLD ENTERPRISE STRUCTURE, BUT WISHES TO PLAY DOWN ITS MILITARY ROLE. THE CORP OPERATES OVER 100 LARGE FACTORIES IN CHINA, SOME OF THEM IN REMOTE MOUNTAINOUS AREAS. XINXING DESIRES TO DEVELOP EXTENSIVE ECONOMIC AND TECHNOLOGICAL TIES WITH FOREIGN BUSINESSES TO EXPLOIT THE PRODUCTION POTENTIAL OF THESE FACTORIES. THE HONG KONG OFFICE WAS SET UP TO PROMOTE SUCH FOREIGN COOPERATION. (SEE ALSO 16-30 SEP 92 DSTI REPORT.) (FIELD COMMENT - [REDACTED])

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B. STATE COUNCIL'S ECONOMIC AND TRADE OFFICE (ETO) PROMISES TO DELEGATE POWERS TO ENTERPRISES AS PART OF ECONOMIC REFORMS (SCMP, 23 AND 30 OCT). THE ETO, UNDER THE DIRECTION OF VICE PREMIER ((ZHU)) RONGJI, HAS PROMISED THAT IT WILL TAKE BOLD STEPS OVER THE COMING YEAR TO GIVE GREATER AUTONOMY TO STATE-RUN ENTERPRISES. IT IS ETO'S INTENT TO PROVIDE ONLY MACROECONOMIC GUIDANCE TO INDUSTRY AND COMMERCE, WHILE ALLOWING ENTERPRISES TO ASSUME MANY OF THE REGULATORY FUNCTIONS FORMERLY RETAINED BY THE STATE. THE SPC WILL ALSO ADJUST ITS FUNCTIONS TO INSURE FURTHER SEPARATION OF THE RESPONSIBILITIES OF GOVERNMENT AND ENTERPRISES, TO REDUCE INTERFERENCE OF ADMINISTRATIVE DEPARTMENTS (DEPT) IN THE DAY-TO-DAY OPERATIONS OF STATE-OWNED ENTERPRISES. IT IS HOPED THAT THE NEW REFORMS WILL ENCOURAGE FIRMS TO ENTER MARKET COMPETITION, WITH RESULTANT IMPROVEMENT IN INDUSTRIAL EFFICIENCY AND REDUCTION OF LOSS-MAKING ENTERPRISES. (SEE ALSO 1-15 AUG 92 DSTI REPORT.)

C. ARTICLE IN ARMY PAPER URGES CAREFUL SCIENTIFIC ASSESSMENT OF THE RELATIVE VALUE OF S AND T IN MODERN WARFARE (LIBERATION ARMY DAILY - LAD, 23 OCT). AN ARTICLE BY ((SU)) ENZE (STC 5685/1869/3419) (BACKGROUND UNKNOWN) WARNS THAT, ALTHOUGH HIGH TECHNOLOGY WAS GIVEN PROMINENCE DURING THE PERSIAN GULF WAR, ITS TRUE VALUE REQUIRES CAREFUL SCIENTIFIC ASSESSMENT. THE AUTHOR

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QUOTES UI U.S. MILITARY EXPERTS IN ASSERTING THE GULF WAR WAS "NEITHER TYPICAL NOR EXEMPLARY" AND EXPRESSING SOME RESERVATIONS ABOUT THE ACTUAL IMPORTANCE OF HIGH TECH IN THE VICTORY OF THE COALITION FORCES. EVERY PIECE OF HIGH TECH WEAPONRY EMPLOYED IN THE GULF WAR POSSESSED CERTAIN "SHADOWS" OR IMPERFECTIONS. IN ADDITION, SINCE S AND T ITSELF IS ALWAYS DEVELOPING, ONE MUST SEARCH FOR FACTS AND AVOID EXAGGERATION IN ASSESSING THE IMPORTANCE AND ACHIEVEMENTS OF HIGH TECHNOLOGY IN WARFARE.

D. MORE INFORMATION ON "ALL-ARMY CONFERENCE ON APPLYING ARMY LOGISTICS S AND T ACHIEVEMENTS" HELD IN JINMEN IN MID-OCT (LAD, 28 OCT). IN ADDITION TO DISCUSSING METHODS OF APPLYING LOGISTICS S AND T DEVELOPMENTS, THE CONFERENCE LEARNED THAT, SINCE 1986, THE GLD SCIENTIFIC RESEARCH SYSTEM HAD COMPLETED OVER 13,000 S AND T ACHIEVEMENTS. OVER 9,600 OF THESE ITEMS HAVE BEEN PUT TO USE, WITH 20.6 PERCENT OF THEM EARNING 5.2 BILLION YUAN THROUGH EXTENSIVE EMPLOYMENT WITHIN THE ARMY. THESE ITEMS INCLUDE A SERIES OF NEW ARMY KITCHEN UNITS, BULLET-PROOF VESTS, AND BEAN CURD PRODUCTION LINES. (SEE ALSO 1-15 OCT 92 DSTI REPORT.)

4. SIGNIFICANT DEFENSE R AND D ACHIEVEMENTS

A. HUNAN NATIONAL DEFENSE S AND T UNIVERSITY DEVELOPS SERIES OF NEW COMPUTER PRODUCTS NEW CHINA NEWS AGENCY - NCNA, 16 OCT). THE UNIVERSITY'S COMPUTER DEPT HAS DEVELOPED A RANGE OF HARDWARE AND SOFTWARE SYSTEMS, AS WELL AS THE ASSOCIATED DISKS, TAPES, AND PROGRAMS. THE "SYMBOLIC/MACY 1.00 COMMERCIAL BOOKKEEPING SYSTEM" APPLIES LOCAL AND INTERNATIONAL DATA BASES IN MANAGING ACCOUNTS FOR UP TO 99 CO'S. THE "COMPUTER STOP SIGNALLING DEVICE" APPLIES POWER SOURCE SWITCHING TECHNOLOGY, AND CAN STORE LARGE QUANTITIES OF PHONETIC DATA AND PRODUCE NATURAL AND EASY-TO-UNDERSTAND SOUNDS. THE "GKD VIDEO/VL.0 USER-INTERFACE DEVELOPMENT ENVIRONMENT SYSTEM" EMPLOYS AUTOMATICALLY GENERATED MULTIPLE WINDOW INTERFACE SOFTWARE FOR USE IN INDUSTRIAL DESIGN AND MANUFACTURING.

B. CHONGQING HUACHUAN MACHINERY FACTORY DEVELOPS "ELECTRONIC DIGITAL HORIZONTAL AND ANGULAR MEASUREMENT INSTRUMENT" (NCNA, 29 OCT). THE INSTRUMENT CONTAINS AN ADVANCED ELECTRONIC SENSOR AND DISPLAY CIRCUIT WHICH PERMITS PRECISE MEASUREMENTS IN BOTH THE HORIZONTAL AND ANGULAR PLANE SIMULTANEOUSLY. THE NEW EQUIPMENT IS 50 TIMES MORE ACCURATE THAN CONVENTIONAL BUBBLE-TYPE MEASURING INSTRUMENTS. IT HAS BROAD APPLICATION IN THE CONSTRUCTION, MACHINE BUILDING, SHIP TRANSPORT AND NATIONAL DEFENSE INDUSTRIES.

C. UI MINISTRY OF MACHINE BUILDING/ELECTRONICS INDUSTRY (MMBEI) RI DEVELOPS "UNIVERSAL CODED CHARACTER SET" (CD, 30 OCT). RI'S WORKING WITH THE NEW SET HAVE

ALREADY CODED MORE THAN 20,000 CHINESE CHARACTERS FOR USE IN ALL TYPES OF COMPUTERS. THE NEW SYSTEM SHOULD END CONFUSION IN EMPLOYMENT OF COMPUTER TECHNOLOGY AND IN DEVELOPMENT OF THE INFORMATION INDUSTRY. IT SHOULD ALSO ASSIST CHINA IN PROMOTING TECHNICAL COOPERATION AND INFORMATION EXCHANGES WITH FOREIGN FIRMS.

D. UI MMBEI RI DEVELOPS CHINA'S FIRST "INLAND RIVER RADAR TRAFFIC CONTROL SYSTEM" (PD, 30 OCT). THE NEW SYSTEM CAN PERFORM MODERN MANAGEMENT FUNCTIONS, SUCH AS MONITORING RIVER TRAFFIC, NAVIGATION, VIDEO RECORDING, AND DATA PROCESSING. THE FIRST SYSTEM OF THIS TYPE HAS BEEN INSTALLED AT THE "DASHI RADIO MONITORING STATION" IN ZHENJIANG //GEOCOORDS: 3213N/11926E// ON THE YANGZI RIVER IN JIANGSU PROVINCE.

E. NANJING LIAN XIANG GROUP INTRODUCES "486/66EISA HIGH PERFORMANCE MICROCOMPUTER" (PD, 31 OCT). THE GROUP PRESENTED THE NEW COMPUTER, WHICH IT CLAIMS IS THE FASTEST IN THE WORLD, TO A CONSUMER REPRESENTATIVES MEETING IN NANJING RECENTLY. THE GROUP HAS ALSO DEVELOPED A NUMBER OF OTHER MICROCOMPUTERS IN THE SAME SERIES WHICH HAVE BECOME POPULAR INTERNATIONALLY. THESE INCLUDE THE 486/50EISA, THE 486/33EISA, THE 386/40W, AND THE 386/33S MODELS.

5. MINISTRY OF AEROSPACE INDUSTRY (MASI)

A. MASI INDUSTRIES IN SHANXI PROVINCE REPORT DRAMATIC GROWTH IN CIVILIAN PRODUCT OUTPUT (PD, 19 OCT). THE 24 AVIATION INDUSTRIES IN THE PROVINCE INVESTED 526 MILLION YUAN IN PURCHASING 54 HIGH TECH PRODUCTION LINES FOR CIVILIAN GOODS DURING THE 7TH FIVE YEAR PLAN (FYP). AS A RESULT OF THIS MASSIVE INVESTMENT, THE PROVINCE'S AVIATION ENTERPRISES HAD A TOTAL OUTPUT VALUE FOR CIVILIAN GOODS DURING 1991 OF 1.24 BILLION YUAN, REPRESENTING 25 PERCENT OF THE TOTAL PRODUCTION OF ALL MASI ENTERPRISES DURING THE YEAR. DURING THE FIRST 6 MONTHS OF 1992, THESE ENTERPRISES INCREASED THEIR OUTPUT VALUE BY 40.89 PERCENT, SALES INCOME INCREASED 56.8 PERCENT, AND PROFITS AND TAXES 853.36 PERCENT.

B. CHINA SHANGHAI AVIATION INDUSTRY AND U.S. MCDONNELL-DOUGLAS (MD) CORPS TO COMPLETE MD-82/83 CONTRACT ON SCHEDULE (CD, 21 AND 25 OCT). THE JV CONTRACT, SIGNED IN 1985, CALLED FOR THE PRODUCTION OF 30 MD-82 AIRLINERS. THE AGREEMENT WAS EXTENDED IN 1991 TO INCLUDE FIVE ADDITIONAL MD-82S AND FIVE MD-83S, THE LATTER TO BE EXPORTED TO THE U.S. THE LAST TWO MD-83S ARE CURRENTLY ON THE ASSEMBLY LINE. THE CONTRACT IS TO BE COMPLETED BY THE END OF 1993. HOWEVER, THE U.S. CORP HAS SIGNED A NEW AGREEMENT WITH CHINA, WORTH USD 1.2 BILLION, TO BUILD 20 147-SEAT MD-80 AND 20 158-SEAT MD-90 TWIN ENGINE JET LINERS. (SEE ALSO 16-30 JUN 92 DSTI REPORT.)

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C. CHINA PREPARATORY COMMITTEE FOR INTERNATIONAL SPACE YEAR HOLDS "SINO-FOREIGN SPACE SCIENCE SEMINAR" IN XIAMEN SEZ (PD, 22 OCT). SIXTEEN FAMOUS SPACE SCIENTISTS FROM THE U.S., JAPAN, AND TAIWAN JOINED MORE THAN 40 SPACE EXPERTS FROM CHINA IN THE 4 DAY SEMINAR, WHICH BEGAN ON 20 OCT. THE ATTENDEES DISCUSSED LATEST DEVELOPMENTS AND FUTURE PROSPECTS FOR SPACE SCIENCE AND ITS APPLICATIONS AND CONSIDERED WAYS TO ENHANCE INTERNATIONAL COOPERATION. FIFTY ACADEMIC PAPERS WERE READ AT THE SEMINAR, COVERING SUBJECTS SUCH AS SOLAR PHYSICS, MAGNETOSPHERE PHYSICS, IONOSPHERE PHYSICS, UPPER ATMOSPHERE PHYSICS, SPACE REMOTE SENSING, MICROMOTION SCIENCE, AND SPACE POSITIONING.

D. SHANGHAI SPACE POWER SOURCES RI PRODUCES CADMIUM-NICKEL ACCUMULATOR BATTERIES FOR SWEDISH SATELLITE (CD, 25 OCT). THE SWEDISH "FREJA" SATELLITE, LAUNCHED ON A LONG MARCH ROCKET ON 6 OCT, IS POWERED BY HIGH TECH BATTERIES PRODUCED BY THE SHANGHAI RI. SWEDEN HAS TENTATIVELY AGREED TO USE SIMILAR BATTERIES FROM THE RI IN ITS NEXT EXPERIMENTAL SATELLITE, THE "ODIN".

E. ARMY PAPER PRAISES ADVANCED S AND T THINKING OF JIUQUAN SPACE CENTER AFTER SUCCESSFUL DOUBLE SATELLITE LAUNCH (LAD, 25 OCT). THE DIRECTOR OF THE CENTER, ((LI)) YUANZHENG, HELD A PRESS CONFERENCE AFTER THE SUCCESSFUL 6 OCT LAUNCH TO HAIL THE RAPID TECHNOLOGICAL PROGRESS ACHIEVED AT THE CENTER. JIUQUAN HAS BEEN RESPONSIBLE FOR OVER 500 S AND T ACHIEVEMENTS IN THE PAST DECADE, WITH 129 OF THEM WINNING STATE, ARMY, AND COMMISSION ON SCIENCE, TECHNOLOGY, AND INDUSTRY FOR NATIONAL DEFENSE (COSTIND) S AND T PROGRESS AWARDS. DURING THE PAST 3 YEARS, THE CENTER HAS INVESTED OVER 10 MILLION YUAN IN IMPROVING WORK AND LIVING CONDITIONS FOR ITS S AND T PERSONNEL. IT IS ALSO PROMOTING PROMISING YOUNG S AND T SPECIALISTS AND RECRUITING PROMISING RESEARCHERS FROM CHINA'S TOP UNIVERSITIES. IN ADDITION, JIUQUAN IS APPLYING ITS TECHNOLOGICAL SUPERIORITY TO SUPPORT STATE ECONOMIC CONSTRUCTION.

F. COSTIND AERODYNAMICS RESEARCH CENTER COMPLETES CONSTRUCTION OF ASIA'S LARGEST "WIND TUNNEL EXPERIMENTAL AIR SOURCE SYSTEM" (LAD, 25 OCT). THE NEW SYSTEM, WHICH COVERS AN AREA OF ABOUT 5,000 SQUARE METERS (M), PROVIDES COMPRESSED AIR FOR WIND TUNNEL RESEARCH, TO ASSIST IN SELECTION, MODIFICATION, AND FINALIZATION OF AEROSPACE FLIGHT VEHICLE MODELS. (NO FURTHER DATA.)

G. CHINESE AND RUSSIAN ACADEMIES OF SCIENCE PLAN JOINT LAUNCH OF TWO SPACECRAFT MISSIONS TO MARS (CD, 27 OCT). THE AGREEMENT IS A NATURAL EVOLUTION OF 2 YEARS OF JOINT RESEARCH BY THE TWO ACADEMIES' PHYSICS RI'S IN DETECTING COSMIC RAYS AND STUDYING SPACE

ENVIRONMENTS USING HIGH ALTITUDE SOUNDING BALLOONS. THE FIRST SATELLITE, "MARS- 96", WILL BE LAUNCHED FROM A RUSSIAN SITE IN 1994. IT WILL ORBIT MARS AND SEND BACK DATA ON THE PLANET'S CLIMATE, GEOLOGY, AND SIGNS OF LIFE. THE SECOND SATELLITE, TO BE LAUNCHED IN 1996, WILL ACTUALLY LAND ON MARS AFTER A JOURNEY OF ABOUT 720 MILLION KILOMETERS (KM).

H. MASI DESIGNS NEW SPACE CENTER NEAR JIUQUAN TO LAUNCH CHINA'S FIRST SPACE SHUTTLE IN LATE 1990'S (CHINA NEWS SERVICE, 31 OCT). THE FIRST PHASE OF THE PROJECT INVOLVES CONSTRUCTION OF A 200 KM LONG SPECIAL RAILWAY FROM JIUQUAN CITY //GEOCOORDS: 3946N/9834E// IN GANSU PROVINCE TO THE SELECTED SITE. KEY TECHNICAL PERSONNEL HAVE ALREADY MOVED TO THE DESIGNATED LOCATIONS AND HAVE BEGUN WORK ON THE LAUNCH COMPLEX, WHICH WILL TAKE ABOUT 10 YEARS TO COMPLETE.

6. SHIPBUILDING INDUSTRY

A. SHANGHAI JIANGNAN SHIPYARD LAUNCHES 20,000 TON BULK CARGO FREIGHTER FOR DALIAN STEAMSHIP CO (SHIP ENGINEERING, 1 OCT). THE "BAO WANG" WAS ORDERED BY THE MINISTRY OF COMMUNICATIONS FOR THE DALIAN CO. IT WAS LAUNCHED ON 19 MAY AND DELIVERED TO ITS NEW OWNERS ON 31 JULY. (NO FURTHER DATA.)

B. SHANGHAI DONGLIAN SHIP ENGINEERING CORP AND CHINA MACHINERY IMPORT/EXPORT CORP SET UP SHIP REPAIR FIRM IN SHANGHAI (CD, 18 OCT). THE "XIDONGLIAN SHIP ENGINEERING CO" IS JOINTLY FUNDED BY THE TWO PARENT CORPS. IT IS EQUIPPED TO REPAIR OR DISMANTLE 40,000 TO 100,000 TON CLASS PANAMANIAN-TYPE FREIGHTERS. IT WILL ALSO HAVE THE CAPABILITY TO BUILD SIMILAR VESSELS OF 60,000 TONS OR LESS.

C. DALIAN SHIPYARD SUCCESSFUL IN CASTING FIRST "SUPER-LARGE PROPELLER" FOR 150,000 TON VESSELS (CHINA SHIP NEWS - CSN, 23 OCT). THE PROPELLER IS 7.7 M IN DIAMETER AND WEIGHS 29 TONS, MAKING IT THE LARGEST PROPELLER EVER CAST IN CHINA. IT WILL BE INSTALLED ON A 150,000 TON OIL TANKER, CURRENTLY UNDER CONSTRUCTION IN DALIAN.

D. JIANGXI JIANGZHOU SHIPYARD BUILDS 16,000 TON CRUDE OIL BARGE FOR YANGXI OIL TRANSPORTATION CO (CSN, 23 OCT). THE SHIPYARD LAUNCHED THE "CUI ZHOU" ON 20 SEP. IT IS 136.2 M LONG, WITH A BEAM OF 22 M, A DEPTH OF 11.6 M, AND A DESIGNED DRAFT OF 9.1 M. THE BARGE, WHICH IS THE LARGEST EVER BUILT IN CHINA, IS SELF-DRIVEN AND SELF-UNLOADING. IT IS PROPELLED BY TWO 1,080 KILOWATT (KW) DIESEL ENGINES, CAN CARRY 16,000 TONS OF CRUDE OIL, HAS A MAXIMUM CRUISE RANGE OF 200 HOURS, AND CAN ACHIEVE A MAXIMUM SPEED OF 17.5 KM PER HOUR.

E. QINGSHAN SHIPYARD UNDER YANGZI RIVER STEAMSHIP CORP BUILDS 4,000 TON CHEMICAL PRODUCTS TRANSPORTER

(CSN, 23 OCT). THE "NINGHUA 40" WAS LAUNCHED BY THE SHIPYARD ON 8 SEP. IT IS 114.8 M LONG AND IS EQUIPPED WITH SUPERSONIC RADAR TO CHECK THE LEVELS, TEMPERATURES, AND PRESSURES OF LIQUID CHEMICALS STORED IN ITS TANKS.

F. CHINA STATE SHIPBUILDING CORP (CSSC) HOLDS SECOND S AND T WORK CONFERENCE IN BEIJING FROM 24 TO 28 OCT (CD, 26 OCT; CSN, 30 OCT). MORE THAN 300 CSSC OFFICIALS AND EXPERTS ATTENDED THE CONFERENCE TO DISCUSS METHODS OF ACCELERATING DEVELOPMENT OF THE INDUSTRY. CSSC GENERAL MANAGER ((ZHANG)) SHOU (STC 1728/1108) TOLD ATTENDEES THAT THE CENTRAL GOVERNMENT HAD GREATLY INCREASED FUNDING TO PROMOTE IMPROVED S AND T RESEARCH FOR THE INDUSTRY. HE SUMMED UP ACHIEVEMENTS OF THE INDUSTRY SINCE 1984 AND OUTLINED OBJECTIVES, TASKS, AND POINTS OF S AND T EMPHASIS OF CONCERN TO CSSC IN THE CURRENT DECADE. CSSC'S TARGET FOR THE END OF THE CENTURY IS TO JOIN THE RANKS OF THE WORLD'S LEADING SHIP BUILDING COUNTRIES. ZHANG IDENTIFIED THREE MAIN TASKS THAT MUST BE ACCOMPLISHED TO REACH THIS GOAL

--  
(1) CSSC'S S AND T SYSTEM AND OPERATIONAL STRUCTURE MUST UNDERGO FURTHER REFORMS;

(2) CSSC MUST INCREASE INVESTMENT IN S AND T, WHILE IMPROVING METHODS OF RESEARCH AND EXPERIMENTATION, AND STRENGTHENING DEVELOPMENT OF MARITIME S AND T;

(3) THE INDUSTRY MUST GRADUALLY INCREASE THE RELATIVE IMPORTANCE OF S AND T PROGRESS IN DEVELOPING CHINA'S SHIPPING INDUSTRY. HE URGED CSSC RI'S AND SHIPYARDS TO FIND WAYS TO COOPERATE MORE CLOSELY IN ACCELERATING COMMERCIALIZATION OF RESEARCH RESULTS. (SEE ALSO 1-15 AUG 92 DSTI REPORT.)

G. CSN PROFILES NUMBER 1 SHIP ENGINEERING OFFICE UNDER JIANGSU AUTOMATION RI (30 OCT). THE RI IS RESPONSIBLE FOR R AND D OF COMBAT SYSTEMS ENGINEERING AND TECHNOLOGY FOR THE NAVY'S MODERN FRIGATES. IT HAS ALSO UNDERTAKEN MORE THAN 20 RELATED NATIONAL DEFENSE PRELIMINARY RESEARCH PROJECTS. IT HAS BEEN PRAISED BY CSSC FOR SATISFACTORILY ACCOMPLISHING ITS MISSIONS AND ENSURING THE QUALITY, QUANTITY, AND EFFECTIVENESS OF MAJOR WEAPONS AND EQUIPMENT ENGINEERING PROJECTS. TO IMPROVE THE PERFORMANCES OF ENTIRE COMBAT SYSTEMS, ITS SCIENTISTS HAVE CONSTANTLY ADOPTED NEW TECHNIQUES AND TECHNOLOGIES AND INTRODUCED NEW PARTS. IN THE PAST 6 YEARS, THEY HAVE BEEN ABLE TO ACHIEVE THE INTEGRATION OF TRACKING SENSORS AND COMMAND INSTRUMENTS IN A SINGLE CONSOLE FOR THE FIRST TIME IN CHINA.

H. CSN PROFILES NUMBER 3 RESEARCH OFFICE UNDER WUHAN SHIPPING DESIGN RI (30 OCT). THE OFFICE HAS

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BEEN RESPONSIBLE FOR THE OVERALL RESEARCH AND DESIGN OF SEVERAL MEDIUM SIZE PLA NAVY WARSHIPS. IT HAS UNDERTAKEN THE DESIGN OF A NEW TYPE ENGINEERING VESSEL AND THE DESIGN TASKS FOR THE MODERNIZATION AND CONVERSION OF AN UI TYPE OF WARSHIP. THE TWO REMODELLED VESSELS WERE DELIVERED TO USERS IN DEC 89 AND NOV 91 RESPECTIVELY. THE FIRST VESSEL IN A KEY DESIGN PROJECT IT IS NOW UNDERTAKING ENTERED THE TESTS AND SEA TRIALS STAGE RECENTLY. IN OVER 30 YEARS SINCE THE RESEARCH OFFICE WAS FOUNDED, IT HAS WON 13 STATE AND 13 MINISTERIAL S AND T PROGRESS AWARDS.

I. CSN PROFILES SICHUAN TRANSMISSION AND GEARBOX EQUIPMENT RI (30 OCT). THE RI IS PRIMARILY RESPONSIBLE FOR DEVELOPMENT OF NEW PRODUCTS AND TECHNOLOGIES DERIVED FROM COMPUTER APPLICATIONS. IN RECENT YEARS, IT HAS SUCCESSFULLY COMPLETED MORE THAN 20 R AND D PROJECTS PRODUCING TRANSMISSIONS AND COMPONENTS FOR PLA NAVY AND ARMORED FORCE EQUIPMENT. IT HAS ALSO DEVELOPED OVER 1,000 HIGH PRECISION GEAR COMPONENTS AND LARGE TRANSMISSION DEVICES IN FULFILLMENT OF A NUMBER OF KEY STATE R AND D PROJECTS. THESE INCLUDE WORK FOR THE XICHANG SATELLITE LAUNCH COMPLEX, THE BAOGANG STEEL FACTORY, THE JIUQUAN STEEL FACTORY, AND THE YIZHENG PETROCHEMICAL PLANT.

J. CSN PROFILES SHIPBUILDING RI UNDER SHANGHAI HUDONG SHIPYARD (30 OCT). THE RI IS THE SHIPYARD'S MAIN TECHNICAL DESIGN UNIT, AND HAS BEEN RESPONSIBLE FOR DESIGNING A 68,000 TON DOUBLE-BOTTOM, DOUBLE-HULLED OIL TANKER AND A 70,000 TON BULK FREIGHTER OF SIMILAR DESIGN. IT HAS COLLABORATED WITH OTHER ORGANIZATIONS IN DEVELOPING A "TRIPLE PURPOSE WORKING BARGE" CAPABLE OF CARRYING 2,700 STANDARD CONTAINERS WITH AN 8,400 HORSEPOWER ENGINE, AS WELL AS A 52,000 TON CRUDE OIL PROCESSING VESSEL. IT COMPLETELY DESIGNED THE FIRST FULLY SEALED FRIGATE FOR THE PLA NAVY, AND RECENTLY, WITH THE COOPERATION OF OTHER RI'S, COMPLETED DESIGN OF A NEW GENERATION OF NAVY FRIGATES.

K. CSN PROFILES UI RI UNDER THE JIANGSU LAISHENG ELECTRONIC EQUIPMENT FACTORY (30 OCT). IN RECENT YEARS, THE RI HAS DEVELOPED A NEW GENERATION OF DIGITIZED SONARS AND TWO TYPES OF DIGITIZED SOUND RAY TRACKING PLOTTERS FOR THE PLA NAVY. ITS NEWLY DEVELOPED ECHO SONAR EMPLOYS DIGITAL SIGNAL PROCESSING, AUTOMATIC FAULT DETECTION, AND MANY OTHER NEW TECHNOLOGIES. THE SONAR'S DESIGN RECENTLY PASSED TECHNICAL APPRAISAL BY EXPERTS FROM THE ELECTRONIC DIVISION OF THE PLA NAVY EQUIPMENT DEPT AND CSSC'S BUREAU OF MILITARY INDUSTRIES.

7. COMMUNICATIONS, COMMAND, AND CONTROL DEVELOPMENTS

A. GENERAL OFFICE OF STATE COUNCIL AWARDS  
EXCLUSIVE COMMUNICATIONS SYSTEM CONTRACT TO BEIJING

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CORP (HONG KONG WEN WEI PO - WWP, 18 OCT). THE BEIJING HUAXUN COMMUNICATIONS DEVELOPMENT CORP HAS WON THE CONTRACT TO BUILD A MOBILE COMMUNICATIONS SYSTEM EXCLUSIVELY FOR THE USE OF THE STATE COUNCIL. THE CONTRACT WITH HUAXUN, SIGNED ON 17 OCT, CALLS FOR THE IMPORT OF AN ADVANCED RADIO MASS COMMUNICATIONS EQUIPMENT SYSTEM AND THE SELECTION OF HIGH QUALITY AUXILIARY EQUIPMENT FROM AMONG DOMESTIC MANUFACTURERS.

B. COUNTY IN FUJIAN PROVINCE INSTALLS 6,000-GATE PROGRAM-CONTROLLED TELEPHONE SYSTEM (PD, 19 OCT). THE NEW SYSTEM RECENTLY WENT INTO FULL OPERATION IN DONGSHAN COUNTY //GEOCOORDS: 2342N/11725E//, WHICH IS THE HOME OF MANY OVERSEAS CHINESE WHO HAVE RETURNED TO CHINA. LOCAL PEOPLE WILL NOW BE ABLE TO MAKE DIRECT-DIAL TELEPHONE CALLS TO OVER 200 CITIES IN CHINA AND ABOUT 140 FOREIGN COUNTRIES.

C. GUANGDONG BUREAU OF MOBILE COMMUNICATIONS PLANS VAST EXPANSION OF PROVINCE'S MOBILE TELEPHONE CAPACITY (HONG KONG TA KUNG PAO - TKP, 22 OCT). BUREAU DIRECTOR ((LU)) ERRUI (STC 4151/1422/3843) HAS ANNOUNCED THAT THE PROVINCE WILL INVEST 800 MILLION YUAN DURING 1992 TO EXPAND THE COVERAGE AND CAPACITY OF ITS MOBILE TELEPHONE NETWORK. FOUR HUNDRED MILLION YUAN OF THIS MONEY WAS INVESTED DURING THE FIRST HALF OF THE YEAR TO UPGRADE TWO LARGE CAPACITY CENTRAL PROCESSING UNITS AND TO BUILD THREE NEW MOBILE EXCHANGES.

D. CHINA AND U.S. ATT CORP SET UP JV IN BEIJING TO MANUFACTURE "LIGHT-GUIDE EXPRESS ENTRY FIBER OPTIC CABLES" (CD, 23 OCT). ATT WILL PROVIDE 60 PERCENT OF THE USD 12.6 MILLION INVESTMENT REQUIRED TO SET UP THE CABLE PRODUCTION LINE. THE FACTORY WILL ENTER FULL PRODUCTION IN 1994, AND WILL BE ABLE TO PRODUCE UP TO 5,000 KM OF FIBER OPTIC CABLE ANNUALLY. THE CHINESE PARTNERS IN THE JV ARE THE BEIJING OPTICAL COMMUNICATIONS CO, THE BEIJING CABLE FACTORY, AND THE CHINA NATIONAL POSTS AND TELECOMMUNICATIONS (PT) INDUSTRY CO. THE 30 YEAR JV WILL EMPLOY THE U.S. CO'S LATEST PRODUCTION, EQUIPMENT, AND MATERIAL TECHNOLOGY. THIS IS ATT'S THIRD COMMUNICATIONS JV IN CHINA -- THE OTHER TWO ARE IN SHANGHAI.

E. FIRST SECTION OF HONG KONG-GUANGZHOU ULTRA HIGH SPEED OPTICAL CABLE NETWORK BEGINS OPERATION (WWP, 24 OCT). THE SECTION OF THE CABLE SYSTEM BETWEEN HONG KONG AND SHENZHEN SEZ WENT INTO OPERATION ON 23 OCT. THE NETWORK, WHICH WILL LINK ALL KEY CITIES IN THE PEARL RIVER DELTA, IS A JV BETWEEN THE GUANGDONG PT BUREAU AND HONG KONG TELECOM. THE NEW SECTION IS 56 KM LONG AND HAS A TRANSMISSION SPEED OF 565 MEGABITS PER FIBER OPTIC PAIR. THE CABLE HAS 12 OPTICAL FIBERS WITH A MAXIMUM CAPACITY OF 46,000 SIMULTANEOUS TELEPHONE CALLS.

F. PLA NAVY COMMUNICATIONS APPLICATIONS AND RESEARCH OFFICE DEVELOPS "MOBILE SHORT-WAVE DIGITAL RADIO COMMUNICATIONS SYSTEM" (LAD, 25 OCT; PD, 31 OCT). THE SYSTEM CONVERTS THE MONOLITHIC NATURE OF SHORT-WAVE COMMUNICATIONS AND IMPROVES ITS TIME-EFFECTIVENESS. THE SOFTWARE FOR THE SYSTEM WAS DEVELOPED BY ENGINEER ((SHAO)) XINHAI (STC 6730/6580/3189), WHO IS A MEMBER OF NORTH SEA FLEET UNIT NUMBER 37003. THE SYSTEM WAS RECENTLY DISPLAYED AT THE INTERNATIONAL PRODUCTS EXPOSITION IN QINGDAO.

G. CHINA WINS CONTRACT TO BUILD TWO SATELLITE GROUND STATIONS IN BURMA (CD, 25 OCT). CHINA RADIO AND TV INTERNATIONAL TECHNO-ECONOMIC COOPERATION CORP WON THE CONTRACT TO BUILD THE TWO STATIONS, WHICH MUST BE OPERATIONAL BY THE END OF 1993. THE CORP HAS ALREADY BUILT SIMILAR FACILITIES IN HONG KONG AND LAOS. IT RECENTLY ESTABLISHED A JV IN MALAYSIA TO BUILD MICROWAVE TRANSMISSION TOWERS.

H. CHINA'S LARGEST AND MOST SOPHISTICATED SATELLITE COMMUNICATIONS GROUND STATION BEGINS OPERATING IN BEIJING (WWP AND PD, 27 OCT). THE STATION IS LOCATED IN SHAHE, WHICH IS ABOUT 45 KM NORTHWEST OF BEIJING. THE NEW TRACKING, TELEMETERING, COMMAND, AND MONITORING STATION FEATURES A HIGH LEVEL OF AUTOMATION. IT IS ONE OF SIX COMPLEXES COMPOSING A GLOBAL SATELLITE NETWORK OPERATED BY THE INTERNATIONAL TELECOMMUNICATIONS SATELLITE ORGANIZATION.

8. NUCLEAR/ELECTRIC POWER INDUSTRY

A. HEILONGJIANG PROVINCE BEGINS CONSTRUCTION OF 18,000 KW XIANGSHAN HYDROPOWER STATION (HARBIN RADIO, 15 OCT). THE STATION IS LOCATED 72 KM NORTH OF HEIHE ON THE HEILONGJIANG RIVER. IT WILL REQUIRE AN INVESTMENT OF 87 MILLION YUAN AND WILL BE COMPLETED BY THE END OF 1995. WHEN IT ENTERS THE POWER GRID IT WILL HAVE AN ANNUAL OUTPUT OF 42 MILLION KW/HOURS.

B. MINISTRY OF ENERGY RESOURCES PLANS "HYDROELECTRIC STATION EQUIPMENT AND CONSTRUCTION EXPOSITION" IN JUN 93 (CD, 18 OCT). THE SHOW, WHICH WILL BE HELD IN THE BEIJING INTERNATIONAL EXHIBITION CENTER, WILL FEATURE HIGH TECH EQUIPMENT TO BE EMPLOYED TO BUILD THE THREE GORGES HYDROPOWER AND DAM PROJECT. THE EXHIBITION WILL ENCOURAGE INTERNATIONAL COOPERATION AND INVESTMENT IN THE MASSIVE DAM PROJECT. THE EXPOSITION WILL BE ACCOMPANIED BY AN INTERNATIONAL SYMPOSIUM ON THE THREE GORGES PROJECT, TO ADDRESS ITS OVERALL DESIGN, EQUIPMENT SELECTION, CONSTRUCTION TECHNOLOGY, AND MACHINERY. (SEE ALSO 1-15 APR 92 DSTI REPORT.)

C. HENAN POWER TRANSMISSION CO COMPLETES "500 KILOVOLT DOUBLE-CIRCUIT, HIGH TENSION CABLE" ACROSS YELLOW RIVER (PD, 21 OCT). THE CABLE STRETCHES OVER 4

KM ACROSS THE YELLOW RIVER NEAR THE MANGSHAN TOURIST CENTER IN ZHENGZHOU //GEOCOORDS: 3445N/11340E//. THE CABLE IS ONE OF THE MAIN ARTERIES FOR THE HENAN AND CENTRAL CHINA POWER NETWORK AND IS EMPLOYED TO TRANSMIT ELECTRIC POWER FROM NORTH TO SOUTH.

D. MORE THAN HALF OF PREPARATORY STEPS FOR SECOND STAGE CONSTRUCTION OF QINSHAN NUCLEAR POWER PLANT COMPLETED (WWP, 27 OCT). THE FEASIBILITY STUDY FOR THIS KEY 8TH FYP PROJECT WAS APPROVED BY THE SPC IN JULY 92. ENGINEERING TESTS, INITIAL DESIGN WORK, AND EQUIPMENT POSITIONING HAVE NOW BEEN COMPLETED. AGREEMENTS HAVE BEEN SIGNED WITH TWO UI FRENCH CO'S TO PROVIDE TECHNICAL ASSISTANCE IN THE CONSTRUCTION OF TWO 600,000 KW WATER PRESSURE REACTORS AT A SITE 2 KM SOUTH OF THE EXISTING 300,000 KW NUCLEAR REACTOR. EARTH AND STONE WORK FOR THE PROJECT WILL BEGIN IN EARLY 1993 AND THE PROJECT IS TO BE COMPLETED AND SUPPLYING POWER TO THE EAST CHINA GRID BEFORE THE YEAR 2000. (SEE ALSO 16-30 SEP 92 DSTI REPORT.)

E. ASIAN DEVELOPMENT BANK TO PROVIDE USD 50 MILLION LOAN FOR 1.2 MILLION KW NANSHA THERMAL POWER PLANT (CD, 27 OCT). THE GUANGDONG PROVINCE GOVERNMENT HAS SECURED THE LOAN TO HELP DEFRAY THE COST OF THE 2.1 BILLION YUAN NANSHA SEZ POWER STATION, LOCATED ABOUT 43 KM SOUTH OF GUANGZHOU. IN MAY 91, THE SPC APPROVED A JV BETWEEN THE HONG KONG NEW WORLD DEVELOPMENT CO AND THE GUANGZHOU ECONOMIC CONSTRUCTION DEVELOPMENT CO, EACH HOLDING 50 PERCENT EQUITY IN THE PROJECT. SECOND PHASE CONSTRUCTION OF THE PLANT IS TO BE COMPLETED BY THE END OF 1994.

#### 9. MEDICAL SCIENCE

A. MINISTRY OF PUBLIC HEALTH (MPH) PLEDGES TO WIPE OUT POLIO IN CHINA BY 1995 DURING REGIONAL IMMUNIZATION MEETING (CD, 20 OCT). THE 5 DAY SESSION, SPONSORED BY THE WORLD HEALTH ORGANIZATION, WAS THE THIRD MEETING OF THE TECHNICAL ADVISORY GROUP FOR THE WESTERN PACIFIC REGION'S EXPANDED IMMUNIZATION PROGRAM. SIXTY-FIVE SPECIALISTS FROM EIGHT COUNTRIES ATTENDED THE MEETING TO CONSIDER PROPOSALS TO BULK PURCHASE POLIO VACCINES, WHICH COULD THEN BE PROCESSED LOCALLY AT GREATLY REDUCED COSTS. THE MINISTRY REPORTED THAT THE NUMBER OF CONFIRMED POLIO CASES IN CHINA HAD BEEN REDUCED FROM 5,089 IN 1990, TO 1,918 IN 1991. MPH THEREFORE PROJECTS THAT IT WILL BE ABLE TO ACHIEVE ITS SELF-IMPOSED DEADLINE OF 1995 FOR ERADICATING THE DISEASE IN CHINA.

B. TWO DOCTORS FROM PLA NUMBER 309 HOSPITAL SUCCESSFULLY REPLACE PATIENT'S ENTIRE THIGHBONE AND KNEE IN LANDMARK SURGERY (CD, 23 OCT). DOCTORS ((FAN)) YUSHAN AND ((JING)) HAI PERFORMED THIS UNIQUE SURGERY FOR THE FIRST TIME ON A HUNAN PROVINCE FARMER

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WITH BONE CANCER. THE ARTIFICIAL LIMBS WERE PROVIDED BY AN UI FACTORY ATTACHED TO MAS1. THE PATIENT WAS ALREADY WALKING WELL ONLY 2 MONTHS AFTER HIS SURGERY.

C. ALL CHINA ASSOCIATION OF INTERNAL MEDICINE SPONSORS "TRADITIONAL MEDICINE CARDIOLOGY SEMINAR" IN BEIJING. THREE HUNDRED TOP CARDIOLOGY EXPERTS FROM CHINA AND OVERSEAS ATTENDED THE 3 DAY SEMINAR, WHICH BEGAN ON 22 OCT. MORE THAN 800 MEDICAL THESES WERE SUBMITTED TO THE SEMINAR, PRESENTING VARIOUS USES OF CHINESE TRADITIONAL MEDICINES IN DIAGNOSING, TREATING, AND CURING HEART DISEASE.

D. PLA FIRST UNIVERSITY OF MILITARY MEDICINE DEVELOPS "3-DIMENSIONAL ELECTRO-ENCEPHALOGRAPHIC CONTOURING SYSTEM" (PD, 23 OCT). THE SYSTEM EMPLOYS COMPUTER TECHNOLOGY TO EMULATE A 3-DIMENSIONAL DISPLAY MODEL OF THE HUMAN BRAIN, AND TO ANALYZE THE TIME AND FREQUENCY DOMAINS OF THE ELECTRO-CORTICAL POTENTIAL OF THE HUMAN BRAIN. THESE RESULTS ARE THEN GRAPHICALLY DISPLAYED ON A 3-DIMENSIONAL COLOR MODEL OF THE HUMAN BRAIN, FACILITATING DIAGNOSIS OF ENCEPHALOPATHY. THE NEW DEVELOPMENT HAS RECENTLY DISPLAYED AT THE BEIJING INTERNATIONAL INVENTIONS EXPOSITION.

E. PLA SECOND UNIVERSITY OF MILITARY MEDICINE AND U.S. ENTERPRISE GROUP SET UP MEDICAL JV IN SHANGHAI'S PUDONG ZONE (CD, 25 OCT). THE UNIVERSITY AND THE UI U.S. FIRM HAVE INVESTED USD 4 MILLION IN THE SHANGHAI KANGYING INDUSTRY AND TRADE CO, A JV WHICH WILL DEVELOP MILITARY MEDICINES FOR PRODUCTION AND MARKETING OVERSEAS.

F. EXPERTS FROM PLA NUMBER 301 HOSPITAL DEVELOP "NEUROMUSCULAR THERAPEUTIC EQUIPMENT" (PD, 30 NOV). THE INSTRUMENT HAS BEEN TESTED ON OVER 300 HEMIPLEGIC PATIENTS WITH CEREBROVASCULAR DISEASE, CEREBRAL EMBOLISMS, AND CEREBRAL INFARCTIONS, AND HAS PROVEN EFFECTIVE IN CURING SOFT TISSUE INJURIES AND ARTHROSIS. THE EQUIPMENT RECENTLY PASSED APPRAISAL TESTING AND HAS BEEN GRANTED A STATE PATENT. IT HAS NOW GONE INTO SERIAL PRODUCTION AT THE BOTOUISHI MEDICAL INSTRUMENT FACTORY IN HEBEI PROVINCE.

#### 10. PLA SERVICES AND ARMS R AND D ACHIEVEMENTS

A. ARMY PAPER PRAISES ACADEMY OF MILITARY SCIENCES (AMS) NEW PATTERN FOR STUDY OF MODERN MILITARY SCIENCE (LAD, 4 OCT). AMS HAS FORMED A NEW CONTINGENT OF MILITARY SCIENCE RESEARCH PERSONNEL WITH HIGH ACADEMIC STANDING BY INTEGRATING THE WORK OF AMATEUR AND CAREER RESEARCHERS. NEW BRANCHES OF FRONTIER AND INTERDISCIPLINARY SCIENCES HAVE BEEN CREATED -- SUCH AS TROOP MANAGEMENT, MILITARY PSYCHOLOGY, AND MILITARY OPERATIONS RESEARCH. THESE HAVE BEEN ADDED TO THE EXISTING DISCIPLINES OF MILITARY THOUGHT, MILITARY STRATEGY, CAMPAIGN AND TACTICAL OPERATIONS, TROOP

COMMAND, TROOP TRAINING, POLITICAL WORK, MILITARY LOGISTICS, MILITARY GEOGRAPHY, MILITARY HISTORY, AND THE MILITARY SYSTEM. AMS IS NOW DEALING WITH NUMEROUS COMPLICATED PROBLEMS CONFRONTING THE PLA AS A RESULT OF GREAT CHANGES IN THE WORLD'S STRATEGIC PATTERNS AND RAPID S AND T DEVELOPMENTS. AMS IS SERVING AS A "THINK TANK", "BRAINTRUST", AND "COMMAND DEPT" TO IMPROVE DEFENSE STRATEGIES, ARMY BUILDING, AND PREDICTIVE RESEARCH ON IMPORTANT ISSUES OF FUTURE WARFARE. THE ACADEMY IS "LOOKING TO THE FUTURE" IN APPLYING SUCH MODERN S AND T METHODS AS CYBERNETICS, SYSTEMATOLOGY, INFORMATION SCIENCE, MATHEMATICS, AND AUTOMATION IN ITS RESEARCH IN SIMULATED OPERATIONS, COMMAND AUTOMATION, MAN-MACHINE INTERFACE, AND MILITARY DATA BANKS. AMS HAS ALREADY ESTABLISHED OVER 1,000 STRATEGIC, CAMPAIGN, AND TACTICAL RESEARCH MODELS, SIMULATIONS SYSTEMS, AND SPECIAL MODELS TO AID IT IN ITS RESEARCH WORK.

B. UI AIR FORCE RI AND BEIJING FIRE BRIGADE DEVELOP "TURBOJET TAIL GAS/WATER MIST FIRE ENGINE" (LAD, 25 OCT). THIS HIGH EFFICIENCY FIRE-FIGHTING VEHICLE WAS DEVELOPED USING A DECOMMISSIONED TURBOJET ENGINE FROM A PLA AIR FORCE FIGHTER. DURING RECENT APPRAISAL TESTING, THE ENGINE EXTINGUISHED A BLAZING FIRE IN AN 80 SQUARE M OIL POOL IN UNDER 10 SECONDS. THE NEW SYSTEM WILL BRING ABOUT A SIGNIFICANT IMPROVEMENT IN CHINA'S FIRE-FIGHTING CAPABILITIES.

C. SHENYANG MR TRAINING SIMULATION EQUIPMENT RI TRANSFERS MILITARY LASER TECHNOLOGY TO ENTERTAINMENT INDUSTRY (LAD, 26 OCT). THE RI APPLIED ITS LASER SIMULATION TECHNOLOGY TO BUILD A HIGH TECH AMUSEMENT PARK CALLED "LASER GUNFIGHTER CITY" IN YINGKOU IN LIAONING PROVINCE. THE PARK WAS SO SUCCESSFUL THAT THE RI NOW HAS CONTRACTS TO BUILD SIMILAR PARKS IN SHENYANG, DALIAN, LUOYANG, AND CHENGDU, WHICH WILL EARN IT A PROFIT OF OVER 1.6 MILLION YUAN.

D. GLD HEALTH DEPT SETS UP RESEARCH FUND FOR MILITARY MEDICAL PERSONNEL RETURNING FROM STUDIES ABROAD (LAD, 27 OCT). MILITARY MEDICAL PERSONNEL UNDER 45 YEARS OF AGE, WHO HAVE STUDIED ABROAD FOR AT LEAST 6 MONTHS AND HAVE RETURNED TO CHINA FOR LESS THAN 1 YEAR, ARE ELIGIBLE TO APPLY FOR FINANCIAL SUPPORT FROM THE FUND WITH WHICH TO CARRY OUT SCIENTIFIC RESEARCH AND EXPERIMENTS. NINETEEN RETURNING STUDENTS HAVE ALREADY OBTAINED ASSISTANCE FROM THE FUND, WITH 13 OF THEIR RESEARCH PROJECTS IN THE HIGH TECH BIOLOGICAL FIELD.

E. GLD ORDNANCE RI SENIOR ENGINEER DEVELOPS "RADAR DEFECTS AUTOMATIC MONITORING DEVICE" (LAD, 29 OCT). ((ZHANG)) XINGYUAN (STC 1728/5281/0356) HAS DEVELOPED AN "ELECTRONIC DOCTOR" WHICH CAN AUTOMATICALLY MONITOR DEFECTS IN RADAR SYSTEMS, GIVE A WARNING ALARM, AND

ISSUE APPROPRIATE GUIDANCE TO REPAIR THE DEFECT. THE DEVICE RECENTLY WON A STATE S AND T PROGRESS AWARD AND IS BEING INTRODUCED THROUGHOUT THE ARMY.

F. PLA AIR FORCE NUMBER 1 AERONAUTICS RI DEVELOPS HIGH TECH EQUIPMENT FOR LATEST COMBAT AIRCRAFT (LAD, 30 OCT). THE RI'S LATEST DEVELOPMENT IS THE BASIC PROTOTYPE OF A NEW "LASER RANGEFINDER" FOR A SPECIAL AIRCRAFT. IT HAS ALSO DEVELOPED A "SPECIAL RADAR INTERFACE" AND AN ACCOMPANYING "INTERFERENCE PRODUCING UNIT", WHICH ADAPTS ADVANCED FOREIGN TECHNOLOGY TO GREATLY IMPROVE THE CONCEALABILITY OF PLA AIR FORCE COMBAT AIRCRAFT IN A FUTURE WAR. THE RI IS CREDITED WITH DEVELOPING A SERIES OF LASER FIRING SIMULATORS FOR A VARIETY OF AIR FORCE AIRCRAFT, WHICH HAVE EFFECTIVELY IMPROVED AIRCRAFT TRAINING THROUGHOUT THE AIR FORCE. OVER THE PAST 5 YEARS, THE RI HAS COMPLETED 58 AWARD WINNING PROJECTS, 85 PERCENT OF WHICH HAVE BEEN SUCCESSFULLY APPLIED, AND 60 PERCENT OF WHICH HAVE BEEN ADDED TO THE AIR FORCE'S EQUIPMENT INVENTORY.

11. DEFENSE CONFERENCES AND EXHIBITIONS

A. MINISTRY OF FOREIGN ECONOMIC RELATIONS AND TRADE (MOFERT) PLANS HIGH TECH EXHIBITION AT START OF 1993 (CD, 24 OCT). MOFERT PLANS AN EXHIBITION OF STATE-OF-THE-ART DOMESTIC PRODUCTS AND TECHNOLOGY FROM 30 DEC 92 TO 5 JAN 93 IN THE PLA MUSEUM IN BEIJING. PRODUCTS WILL BE SHOWN WHICH MOFERT BELIEVES ARE INTERNATIONALLY COMPETITIVE AND DEMONSTRATE THAT CHINA IS READY TO ENTER THE GENERAL AGREEMENT ON TARIFF AND TRADE (GATT). MOFERT ALSO PLANS A SEMINAR IN CONJUNCTION WITH THE EXHIBITION TO EXPLAIN CHINA'S PLANS FOR ENTRY INTO GATT, AND ITS POTENTIAL IMPACT ON DOMESTIC INDUSTRIES AND BUSINESSES.

B. CHINESE ACADEMY OF SCIENCE (CAS) HOSTS VISIT OF RUSSIAN ACADEMY OF SCIENCE (HAS) DELEGATION TO CHINA (CD, 26 OCT). CAS PRESIDENT ((ZHOU)) GUANGZHAO HELD TALKS WITH HIS HAS COUNTERPART, LURII ((OSIPOV)), IN BEIJING ON 24 OCT. THE TWO PRESIDENTS PLEDGED TO EXPAND S AND T EXCHANGES AND COOPERATION BETWEEN THE TWO COUNTRIES.

C. COSTIND PRESENTS RESULTS OF "HUMAN PARANORMAL CAPABILITIES STUDY" AT "SOMATIC SCIENCE CONVENTION" (TKP, 28 OCT). OVER 60 RESEARCH PAPERS AND ACHIEVEMENTS WERE PRESENTED AT THE CONFERENCE, WHICH ENDED IN BEIJING ON 27 OCT. MORE THAN 200 SCHOLARS AND REPRESENTATIVES FROM SSTC, COSTIND, MPH, THE U.S. AND JAPAN ATTENDED WHAT HAS BILLED AS THE "SECOND CHINA CONVENTION AND THIRD SEMINAR ON SOMATIC SCIENCE". ((ZHANG)) ZHENHUA (STC 1728/7201/1403), CHAIRMAN OF THE CHINA SOMATIC SCIENCE SOCIETY, TOLD ATTENDEES THAT CHINA HAS MADE GRATIFYING PROGRESS IN DETERMINING THE ACCURACY OF STUDIES ON HUMAN PARANORMAL CAPABILITIES

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AND THEIR APPLICATIONS. CURRENTLY, THE CHINA SOMATICS SCIENCE RI AND THE SOMATIC SCIENCE RESEARCH CENTER ARE UNDERTAKING A NUMBER OF RESEARCH PROJECTS AT THE STATE, PROVINCIAL, AND MUNICIPAL LEVELS.

D. CHINA NATIONAL DEFENSE S AND T INFORMATION CENTER TO SPONSOR "NATIONAL MEETING ON TRANSFER OF MILITARY TECHNOLOGY TO CIVILIAN USE" (LAD, 30 OCT). THE MEETING WILL BE HELD IN BAODING, SOUTH OF BEIJING IN HEBEI PROVINCE, ON 15 NOV. THE SESSION WILL INTRODUCE MORE THAN 50,000 NEW HIGH MILITARY TECHNOLOGY ACHIEVEMENTS FROM SEVERAL HUNDRED SCIENTIFIC RESEARCH ORGANIZATIONS AND INSTITUTIONS OF HIGHER LEARNING THAT MUST BE TRANSFERRED TO CIVILIAN USE.

COMMENTS: 1. (SOURCE COMMENTS) GLD'S XINKING CORP HAS FOLLOWED COSTIND IN EXPLOITING HONG KONG'S INTERNATIONAL CONNECTIONS. THE 1-15 OCT 92 DSTI REPORT INDICATED THAT COSTIND WAS EXPANDING ITS CONCEPT OF "WINDOW ENTERPRISES", WHICH IT HAD BEEN SETTING UP IN THE SHENZHEN SEZ FOR THE PAST 10 YEARS, INTO HONG KONG. "WINDOW ENTERPRISES" GENERALLY ARE SINO-FOREIGN JV FACTORIES, WHICH PRODUCE HIGH TECH CIVILIAN GOODS FOR MARKETING OVERSEAS. COSTIND MAINTAINS IT HAS HAD CONSIDERABLE SUCCESS INDUCING FOREIGN COMPANIES TO INVEST FUNDS AND THE LATEST TECHNOLOGY IN SUCH OPERATIONS AND NOW HOPES TO FURTHER EXPAND ITS NETWORK INTO HONG KONG, ALTHOUGH THE TERRITORY DOES NOT REVERT TO CHINA UNTIL 1997. NOW, GLD'S MARKETING ARM, XINKING, HAS SIGNED AN AGREEMENT WITH HONG KONG'S MOST SUCCESSFUL ENTREPRENEUR, ((LI)) KASHING, UNDER WHICH HIS FLAGSHIP, CHEUNG KONG HOLDINGS, WILL ATTEMPT TO EXPLOIT THE TECHNOLOGY AND PRODUCTION OF GLD FACTORIES (PARA 3A). CHINA'S DEFENSE INDUSTRIES ARE ANXIOUS TO CONVERT AS MUCH OF THEIR MILITARY PRODUCTION CAPACITY AS POSSIBLE TO CIVILIAN GOODS BEFORE THE END OF THE CENTURY TO MEET NATIONAL ECONOMIC GOALS. THEY ARE ALSO NOT AVERSE TO OBTAINING COLLATERAL FOREIGN TECHNOLOGY PROVIDED BY OVERSEAS FIRMS INVOLVED IN SINO-FOREIGN JVS, WHICH MAY ALSO BE USED TO ENHANCE PLA MILITARY EQUIPMENT DEVELOPMENT.

2. CHINA SHIP NEWS PROFILED FIVE KEY NAVAL ENGINEERING CENTERS RESPONSIBLE FOR RECENT DEVELOPMENTS IN CHINESE WARSHIPS IN ITS 30 OCT EDITION. MOST OF THE CENTERS ARE IN THE GREATER SHANGHAI AREA, AS IT IS AT THE SHANGHAI SHIPYARDS THAT MOST PLA NAVY WARSHIPS ARE BUILT. THE JIANGSU AUTOMATION RI HAS APPARENTLY DESIGNED THE UNMANNED ENGINE ROOMS AND COMPLEX COMMAND SYSTEMS FOR THE NAVY'S NEWEST FRIGATES (PARA 6G). THE SHIPBUILDING RI UNDER THE HUDONG SHIPYARD, WHERE THE NEW FRIGATES ARE BUILT, DESIGNED THE OVER-PRESSURE SYSTEMS ON THE FRIGATES, WHICH THE NAVY CLAIMS ARE "FULLY SEALED" AGAINST CHEMICAL OR NUCLEAR ATTACK (PARA

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6J). THE WUHAN SHIPPING DESIGN RI SEEMS TO BE A KEY PLAYER IN EFFORTS TO UPGRADE SOME OF THE NAVY'S EXISTING MEDIUM SIZE WARSHIPS (PARA 6H). THE SICHUAN RI, RESPONSIBLE FOR BUILDING LARGE TRANSMISSION AND GEAR SYSTEMS, HAS APPARENTLY CONTRIBUTED TO DESIGN OF PROPULSION SYSTEMS FOR THE NAVY AND FOR ARMORED VEHICLES FOR THE GROUND FORCES (PARA 6I). FINALLY, THE JIANGSU ELECTRONICS FACTORY HAS BEEN INVOLVED IN DEVELOPING SONAR EQUIPMENT FOR THE NAVY (PARA 6K).

3. AN AIR FORCE RI IN BEIJING HAS APPARENTLY EXPLOITED THE PROPELLING FORCE OF A JET ENGINE TO DEVELOP A VERY SPECIAL FIRE TRUCK FOR EXTINGUISHING PETROLEUM FIRES, WHICH DO NOT RESPOND TO NORMAL FIRE-FIGHTING EQUIPMENT AND TECHNIQUES (PARA 6B). THE RI SAVED FUNDS BY DEVELOPING THE SYSTEM USING AN OBSOLETE JET ENGINE FROM A DECOMMISSIONED AIR FORCE FIGHTER. THE SOVIET ARMY DEVELOPED A CHEMICAL AGENT DECONTAMINATION SPRAY TRUCK IN THE 1960S USING THE SAME TYPE OF ENGINE. THE TECHNIQUE FOR THE FIRE-FIGHTING ENGINE IS PROBABLY SIMILAR TO THE ONES USED BY CHINA'S ANTI-CHEMICAL WARFARE UNITS.

4. MOFERT IS PLANNING AN EARLY JAN 93 EXHIBITION TO POPULARIZE CHINA'S LATEST HIGH TECH DEVELOPMENTS IN THE CIVILIAN PRODUCTS LINE (PARA 6A). THE SHOW HAS OBTAININGLY BEEN SET UP TO SHOW THE WORLD THAT CHINA IS NOT SUCH A BACKWARD THIRD WORLD COUNTRY AND IS READY FOR ENTRY INTO GATT. THE FACT THAT THE SHOW WILL BE IN THE PLA MUSEUM SUGGESTS THAT MANY OF THE GOODS ON DISPLAY WILL HAVE BEEN PRODUCED BY DEFENSE INDUSTRIES. THE EXHIBITION IS CLEARLY FOR THE BENEFIT OF FOREIGN LEADERS; HOWEVER, A CONCURRENT SEMINAR ON THE IMPACT OF GATT ENTRY ON CHINA'S ENTERPRISES AND BUSINESSES IS PRIMARILY FOR DOMESTIC CONSUMPTION. LARGE SEGMENTS OF CHINA'S HUGE STATE-OWNED INDUSTRIAL SECTOR HAVE EXPRESSED GRAVE CONCERNS ABOUT THEIR VIABILITY IF CHINA COMPLIES WITH GATT FREE TRADE REQUIREMENTS. MMBEI IN PARTICULAR, WHICH CONTROLS THE LARGEST SEGMENT OF STATE-OWNED FACTORIES, IS PUSHING FOR SPECIAL TARIFFS AND QUOTAS TO PROTECT ITS LOSS-MAKING FIRMS FROM FOREIGN COMPETITION (SEE 1-15 OCT 92 DSTI REPORT). PRELIMINARY INDICATIONS FROM THE STATE COUNCIL ARE THAT THESE INDUSTRIES SHOULD NOT ANTICIPATE SUCH PROTECTION AND MUST MAKE EFFORTS TO BUILD PRODUCTS THAT ARE COMPETITIVE ON INTERNATIONAL MARKETS.

5. (FIELD COMMENTS) A NORTH SEA FLEET UNIT HAS IDENTIFIED WITH MUCD 37003 (PARA 7F).

6. DIA MESSAGE 160013Z DEC 92 IN AN UNCLASSIFIED PARAGRAPH DISCUSSES CHINESE PLANS TO BUILD A 600-MW "POOR MAN'S" NUCLEAR REACTOR. KNOWN AS AN ADVANCED PRESSURIZED-WATER REACTOR, IT WAS REPORTED THAT IT MIGHT BE DEVELOPED IN COLLABORATION WITH A U.S. FIRM.

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WEN WEI PO REPORTS, HOWEVER, THAT TWO FRENCH COMPANIES  
HAVE SIGNED AGREEMENTS WITH THE PRC TO PROVIDE  
TECHNICAL ASSISTANCE IN CONSTRUCTING TWO 600-MW  
WATERPRESSURE REACTORS IN THE VICINITY OF THE QINSHAN  
NUCLEAR POWER PLANT (PARA 8D).

//IPSP: PT 1400; PT 1941; PT 1700; PT 1300//.

//COMSOBJ: 112; 112; 323; 322//.

ADMIN

PROJ: 0425.

COLL: DB.

INSTR: US YES, 2 RTS2B

PREP: 6-01618

ACQ: HONG KONG (921216).

DISSEM: FIELD: AMCONGEN HK.

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